PROJECT NUMBER: 1708
PROJECT TITLE: Physical Chemistry and Process Monitoring
PROJECT LEADER: J. L. Banyasz
PERIOD COVERED: September, 1988

I. OPERATIONS SUPPORT (J. Crump and A. Closter, in collaboration with the Applied Technology Group)

A. Objective: Determine the effect of particle size distribution on dynamic viscosity changes that occur in PVA tipping adhesives.

B. Results: Particle size analyses have been performed at Case Western Reserve University on a tipping adhesive before and after a prolonged run at 60 RPM in the simulator. The data indicate a shift in average size as a result of machining as well as a shift to a bimodal distribution. These results are suggestive of a degradation process.

Testing of four tipping adhesives currently used in the MC suggests that for the three adhesives supplied by National a reduction in roller speed during idling significantly decreases the viscosity changes observed during idling. An adhesive supplied by Fuller behaved in an inconsistent manner showing no correlation with roller speed.

C. Plans: The roller speed study will be completed.

II. OPERATIONS SUPPORT (T. Van Auken, in collaboration with the Applied Technology Group)

A. Objective: Develop a rapid means of determining plasticizer in filter tow.

B. Results: It was shown that the apparent aging effect in plugs, as observed via IA, are caused by changes in moisture content. Maintaining the plugs at constant RH eliminates the problem.

III. LOW DENSITY RODS (S. Ganeriwala and S. Shelton)

A. Objective: Compare the compression properties of low density and control rods.

B. Results: Samples sprayed with low molecular weight pectin (30,000) showed a significantly lower strain-to-break as compared to those sprayed with a high molecular weight (100,000) pectin. It was also shown that samples sprayed with a hot (70°C) pectin solution were less stiff but had a high breaking strain as compared to those treated with room temperature pectin solutions.

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C Plans: The effect of degree of methylation will be determined.

Source: https://www.industrydocuments.ucsf.edu/docs/yqfm0000